

CLAIMS

What Is Claimed Is:

1. An implantable lead adapted to transmit electrical signals between a connector assembly on a proximal end of the lead and at least one electrode carried by a distal end of the lead, the lead comprising:
a helical fixation element extendable and retractable from the distal end of the lead, the distal end comprising (a) an inner header part comprising an electrically conductive material that is substantially transparent fluoroscopically, the inner header part having a distal end, (b) an outer header part comprising an electrically insulating material, and (c) a collar attached to the distal end of the inner header part, the collar comprising a material that is substantially opaque fluoroscopically.
2. The lead of claim 1 in which:
the inner and outer header parts comprise coaxial tubes.
3. The lead of claim 1 in which:
the inner header part comprises a material selected from the group consisting of titanium, MP35N alloy, stainless steel and an electrically conductive polymer.
4. The lead of claim 1 in which:
the collar is made of a material selected from the group consisting of platinum, gold, a platinum/iridium alloy and tantalum.
5. The lead of claim 1 in which:
the helical fixation element comprises a helix electrode connected to an electrical terminal contact on the connector assembly.

6. The lead of claim 5 in which:
the helix electrode is substantially opaque fluoroscopically.
7. An implantable lead adapted to transmit electrical signals between a connector assembly on a proximal end of the lead and a distal end of the lead for stimulating selected body tissue, the lead comprising:
a helix electrode extendable and retractable from the distal end of the lead, the helix electrode being electrically connected to an electrical contact on the connector assembly, the distal end comprising (a) coaxial inner and outer tubes, the inner tube having a distal end and being made of an electrically conductive material that is substantially transparent fluoroscopically and the outer tube being made of an electrically insulating material, and (b) a collar attached to the distal end of the inner tube, the collar being made of an electrically conductive material that is substantially opaque fluoroscopically.
8. The lead of claim 7 in which:
the collar is electrically connected to the distal end of the inner tube.
9. The lead of claim 7 in which:
the collar is electrically isolated from the connector assembly.
10. The lead of claim 7 in which:
the inner tube comprises a material selected from the group consisting of titanium, MP35N alloy, stainless steel and an electrically conductive polymer.

11. The lead of claim 7 in which:
the collar is made of a material selected from the group consisting of platinum, gold, a platinum/iridium alloy and tantalum.
12. The lead of claim 7 in which:
the helix electrode is made of an electrically conductive material that is substantially opaque fluoroscopically.
13. An implantable lead adapted to transmit electrical signals between a connector assembly on a proximal end of the lead and a distal end of the lead for stimulating selected body tissue, the lead comprising:
a helix electrode extendable and retractable from the distal end of the lead, the helix electrode being electrically connected to an electrical contact on the connector assembly, the distal end comprising (a) coaxial inner and outer tubes, the inner tube having a distal end and being made of a low density, metallic material that is substantially transparent fluoroscopically and the outer tube being made of an electrically insulating material, and (b) a collar attached to the distal end of the inner tube, the collar being made of a high density metallic material that is substantially opaque fluoroscopically.
14. The lead of claim 13 in which:
the collar is electrically connected to the distal end of the inner tube.
15. The lead of claim 14 in which:
the collar is electrically connected to an electrical contact on the connector assembly via the conductive inner tube, whereby the collar may be used for mapping the electrical activity of local body tissue.

16. The lead of claim 13 in which:
the collar is electrically isolated from the connector
assembly.
17. The lead of claim 13 in which:
the inner tube comprises a material selected from the group
consisting of titanium, MP35N alloy, and stainless steel.
18. The lead of claim 13 in which:
the collar comprises a material selected from the group
consisting of platinum, gold, a platinum/iridium alloy and tantalum.
19. The lead of claim 13 in which:
the helix electrode is substantially opaque fluoroscopically.